ROYAL ONTARIO MUSEUM OF ZOOLOGY

BULLETIN No. 1

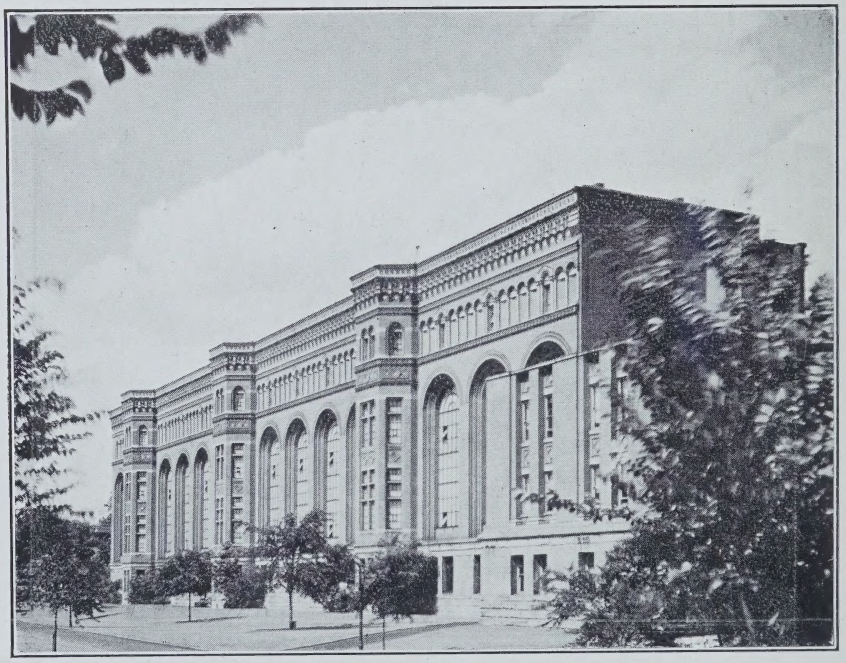
UNIVERSITY OF TORONTO, JUNE, 1928

WHALE-HEADED STORK; SHOE-BILL; BOAT-BILL

Balaeniceps rex Gould

This fine specimen of the rare Shoe-bill was presented to the Museum by H. S. Osler, Esq. who shot it near the junction of the Bahr-el-Ghazal and Lake No, in the Anglo-Egyptian Sudan on March 25, 1924. It has a wing spread of nine feet. The Arab name of the bird, Abu Markub (Father of a Shoe) fully expresses the extraordinary character of the beak.

R.O.M. Publ. No. 19



ROYAL ONTARIO MUSEUM

FOREWORD

For some time the Museum has felt the need of some medium by means of which those interested in its work and expansion could be kept in more intimate touch with its activities. It is perhaps not sufficiently realized to what an extent the development of a Museum of Zoology depends on the active interest of those persons in the community for whom natural history has a special appeal.

A Museum is a public institution. Its collections of beautiful and interesting objects, the creations of man and of nature are maintained for the enjoyment and education of the public. It is therefore the duty of the interested public to give some thought to the enlargement and improvement of its collection.

It is the aim of the series of bulletins, of which this is the first, to keep those interested in the Royal Ontario Museum of Zoology informed as to happenings and accomplishments in its field of work. For the present at least the Bulletin will appear only at irregular intervals, although it is hoped that with the increase of the Museum's staff and financial resources it may develop into a regular periodical.

The Wallace Havelock Robb Collection. Announcement was made some time ago of the presentation to the Museum of a collection of paintings of birds of Eastern Canada. This collection consists of 51 paintings by Major Allan Brooks, D.S.O., of Okanagan Landing, B.C., one of the greatest of living bird artists, and owes its existence to Mr. Wallace Havelock Robb of Belleville. In his efforts to bring together a collection of bird paintings by Allan Brooks, Mr. Robb has had the support of a number of persons both in the United States and Canada, but it is to him that the chief credit for the building of the collection belongs. Mr. Robb has given it to this Museum to hold in trust for the people of Canada, to aid in stimulating an appreciation of the beauty and value of our native birds. The paintings are now on exhibition in the Museum gallery.

Reproductions of Bird Paintings. Through the courtesy of the Howard Smith Paper Mills Ltd. of Montreal who have reproduced 12 of the Allan Brooks bird paintings from the Wallace Havelock Robb collection for their 1928-29 calendar, the Museum has been able to obtain a number of sets of these reproductions for sale at a nominal price. These reproductions, which are 9 by 11 inches, have been very faithfully reproduced in full colour. The birds represented in this collection are,—Baltimore oriole, ruby-throated hummingbird, goldfinch, blue jay, loon, ruffed grouse, screech owl, flicker, chickadee and white-breasted nuthatch, belted kingfisher, scarlet tanager, bluebird.

The twelve reproductions will be mailed to any address for fifty cents. Please remit by Postal Note or Money Order.

Game Fish Collection. The Museum now has a fine series of coloured casts of Canadian game fishes including the following species,—Atlantic salmon, sebago salmon, ouananiche, steelhead, rainbow trout, Kamloops trout, cut-throat trout, eastern speckled trout, (of several colour variations), Marston's trout, Dolly Varden, lake trout, king salmon, grayling, pike, maskinonge, small and large-mouthed black bass and yellow pickerel. Two of the rarest of Canada's game species, *viz.*, the ouananiche and Marston's trout were added to the collection last summer through the co-operation of the Canadian Pacific Railway Company who are publishing soon a booklet on the Game Fish of Canada illustrated with 16 coloured illustrations reproduced from the Museum's coloured casts.

The Museum has also published a 20-page Guide to the Game Fishes of Canada which sells for 10 cents. This guide is not illustrated but contains descriptions of the species included in the Museum's collection.

A party from the Museum, consisting of Prof. J. R. Dymond, T. B. Kurata, and E. B. S. Logier, will study the trout of British Columbia during the coming summer. Under the auspices of the Biological Board of Canada, Professor Dymond will continue the studies he began two years ago, which have as their object the settling of the question as to the relationship of the various species found in the waters of British Columbia. Mr. Logier will make colour sketches of various species while Mr.

Kurata will cast varieties and colour phases not already represented in the Museum collection. General collecting will also be done.

The Museum's Faunal Survey of Ontario. Five years ago the Museum undertook a faunal survey of Ontario. Lake Nipigon, Lake Abitibi, the Toronto region and Long Point, Lake Erie, have been visited in connection with this work which aims at giving detailed and accurate information as to the natural history of the areas concerned.

During the present summer L. L. Snyder, associate in ornithology, H. P. Stovell and Mr. John Edmonds will visit Long Point during the month of May to continue the investigation of this area which was initiated last season. During the course of the study of the resident fauna carried on last June and July it was realized that Long Point was so important as a field for migration studies, particularly in the case of wild fowl and shore birds, that it was deemed advisable to send a special expedition to make these studies this spring. The Long Point Company which owns and acts as guardian of the Point is materially assisting in the survey by giving free use of boats, cabins, and other field necessities.

J. L. Baillie will do ornithological collecting at Ashbridge's bay, Toronto, during the month of May. This area was formerly a noted resort of migratory birds but it is rapidly being defaced by harbour developments. Within the coming year it is expected that commercial improvements will finally erase all conditions which made it attractive to bird life. Mr. Baillie will include an historical account of the area with his report on the birds found there this spring.

THE LIFE HISTORY AND CONSERVATION OF THE BLACK BASS.

THERE is at present a great deal of concern over the serious depletion of game fish in many parts of Ontario. On account of the increase of tourists visiting the Province in summer and the easier access which good roads and the motor car give to fishing districts, the bass, trout, and maskinonge especially, are becom-

ing very scarce in many areas where formerly they were found in abundance.

Among game species no fish surpasses the small-mouthed black bass (*Micropterus dolomieu* Lacépède) in popularity and it is worth giving serious thought to its conservation. One of the first essentials towards accomplishing this is the understanding of the fish's life history. That history is not yet sufficiently known but the following is a brief outline of some of the habits of this interesting species.

In late May or June, and in some places much later, depending on whether the season is early or late, the male bass begins to make his nest. He likes best a shallow place where the bottom is covered with coarse gravel and where there is a log, a big rock, or a bank to afford protection so that he will have to look out for enemies on only one side. Carefully he sweeps away the mud and rubbish from an area two or three feet across. The female does not deposit the eggs on any particular day according to the calendar but waits until the water gets fairly warm (62° to 65° Fahrenheit). In some years and in some districts the water does not reach this temperature until quite late in June or even as late as July. After the female has deposited the eggs she goes away from the nest but the male stays on guard to keep away fish and other enemies that would destroy them. He also fans the nest with his fins, thus keeping the water around the eggs fresh and pure. The adult bass doesn't incubate the eggs as a hen does. They hatch into little fishes as they lie on the nest and at quite a low temperature as compared with birds' eggs, but it is just as necessary that the male bass guard his nest when the eggs are hatching as it is that a hen guard and hatch her eggs. Some kinds of fish eggs can be hatched in hatcheries much as hen's eggs are hatched in incubators but this cannot be done with bass eggs. Sometimes the adult bass are put into artificial ponds where they build nests and raise their young just as they do in rivers and lakes under natural conditions.

The eggs of the bass are very tiny. It takes ten or twelve placed side by side to reach an inch but they contain yolk, just as a bird's egg does, on which the little fish lives after it is hatched and before it is able to get food for itself from the water. When the little bass is first hatched there is so much of the yolk

hanging in a little sac beneath it that it cannot swim. Subsequently this diminishes as the tiny fish grows larger, but until it is totally absorbed it continues to weigh him down so that he cannot escape from the many enemies such as perch, sunfish, catfish, snapping turtles, and many other hungry creatures in the water. If it were not for the male bass who guards them from their enemies while they are helpless, few of the newly hatched bass would ever grow to be very big.

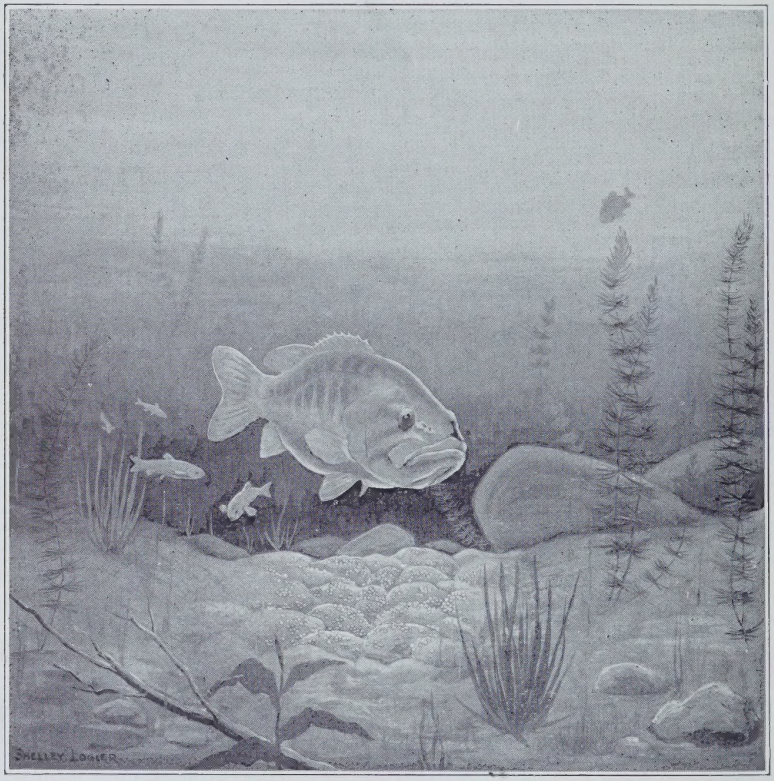
Agencies Destructive to Bass.

Competitor and Enemy Fish. Even with the male protecting them, many young bass may be destroyed if there are too many competitor or enemy fish in the water. Some of the enemy fish may get into the nest and destroy the eggs or young while the male is driving others away. Thus, if most of the bass are taken from a stream, and carp, suckers, pike, perch, catfish and other kinds of fish are allowed to increase, the few bass have an almost impossible task to keep these hordes away from their nests.

Floods are very destructive to bass. When forests covered the country the water which fell as rain or which resulted from the snow melting in the spring ran away slowly, being kept in the forest by the moss and leaves which acted as sponges to hold it and let it run away gradually. Then there were no serious floods because the water, being held back in the forest, came away gradually. The streams did not become low in summer and the water was always pure and cool.

Now that the forests have been cut down, the ground along many of the streams is left bare, and following a heavy rainfall the water runs away quickly, carrying with it much soil. The sediment-laden water of the much-swollen streams sweeps towards the lake, scouring out the bottom of the stream, destroying the nests of the bass, and carrying away the eggs. When the quiet water of the lake is reached, the sediment settles, burying the nests and smothering the eggs of the bass which have spawned in the lake. Following the flood, the water sinks to a very low level and in summer becomes very warm. All of these conditions are unfavourable to bass.

Deforestation. The removal of forests and of the thick beds of moss and leaves which cover the ground in forests is undoubtedly the cause of the disappearance of bass from many of our lakes. Even in July one sometimes finds ice under a bed of moss in a deep forest. A lake surrounded by such a forest is receiving trickles of ice-cold water all summer. With the forest removed,



MALE BASS GUARDING NEST AND EGGS

the ice and snow melts in the spring and the lake water becomes much warmer in summer than under original conditions. Sediment, too, is washed into the lake as suggested above, and the clean gravel becomes covered with mud. Such a lake is no longer suitable for small-mouthed bass.

Pollution—Bass are now unable to live in some waters where they were originally found because of pollution. Wastes from gas plants, mines, pulp and paper mills, creameries, and many other kinds of factories and mills are destructive to fish life. A substance need not be directly poisonous to fish to be deleterious. If it destroys any of the smaller animals or plants on which fish live, or removes the oxygen from the water, it will make fish life impossible. Sawdust may not be directly injurious to fish but if it covers the bottom so that bottom organisms are smothered or if it destroys the spawning grounds it will be destructive to fish life.

Illegal and Unsportsmanlike Fishing—Fishermen sometimes catch the male while he is guarding his nest. At that time he fiercely attacks anything that comes into the water near his nest. It is very thoughtless to fish for bass at that time. No one, worthy of the name of sportsman, will take unfair advantage of the fighting instinct which prompts the parent bass to protect its young in order to lure him to his destruction.

PERSONALS

THE increasing interest and support which the Museum is receiving is, we feel certain, only the beginning of great expansion in the immediate future should this be made possible in a physical way by the erection of a new wing to the present building.

Of very great value to the Museum is the service which the Honorary Curator of Ornithology, Mr. J. H. Fleming, is rendering. Mr. Fleming, whose reputation as an ornithologist is world wide, has one of the most extensive private collections of birds in existence as well as a very complete library of ornithological literature. The Museum is very fortunate in being able to avail itself at this stage in its existence of the advice and co-operation of a naturalist of Mr. Fleming's experience and standing.

Mr. John Edmonds is also rendering a great service to the Museum in giving almost his whole time without pay in assisting in the re-arrangement of the study collection of bird skins. Mr. Edmonds also accompanied the Museum party to Long Point last summer to assist in the natural history survey of the area, and is returning with the party again this spring.

GROUP OF BLACK BEAR, NORTHERN ONTARIO

ROYAL ONTARIO MUSEUM OF ZOOLOGY

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ADMISSION

The Museum is open from 10 a.m. to 5 p.m. all week-days except Christmas Day and the morning of New Year's Day. It is also open Sunday from 2 p.m. to 5 p.m.

Admission is free Sunday, Tuesday, Thursday, and Saturday, and on all public holidays. On other days the admission fee is fifteen cents.

University students are admitted without charge on presentation of their registration cards.

All classes from the schools, art students, and study groups are admitted free.

Additional copies of this bulletin may be obtained, free, from the Department of University Extension, University of Toronto, Toronto 5, Canada.

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